Sandia National Laboratories Waste Isolation Pilot Plant (WIPP)
Program Description

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PURPOSE:

This document describes the Sandia National Laboratories (SNL) WIPP program, with emphasis on the SNL WIPP Quality Assurance (QA) program. It details the organizational structure, as well as internal and external organizational interfaces including management, performance, and assessment responsibilities.

BACKGROUND of the WIPP:

The Waste Isolation Pilot Plant is a United States (US) Department of Energy (DOE) repository designed for permanent disposal of defense-related transuranic (TRU) waste. It is located approximately 40 miles southeast of Carlsbad, New Mexico.

The US DOE and it predecessors began characterizing the WIPP site in 1976. Throughout much of 1996, the WIPP Project carried out comprehensive and detailed probabilistic performance-assessment (PA) calculations to support the Compliance Certification Application (CCA). In October 1996, the CCA was submitted to the US Environmental Protection Agency (EPA) to demonstrate compliance with its regulations for containment of non-mixed TRU waste (waste containing radioactive but no chemically hazardous constituents). In May 1998, the EPA certified that the WIPP complies with these regulations. The WIPP opened in March 1999 when it received its first shipment of non-mixed TRU waste. In November 1999, the New Mexico Environment Department certified that the WIPP complies with separate regulations for mixed TRU waste, which contains both radioactive and chemically hazardous constituents. In September 2000, the WIPP received its first shipment of mixed TRU waste.

The WIPP is located at a subsurface depth of 655 m in the Salado Formation, a Permian bedded-salt formation. The repository will eventually comprise 56 disposal rooms, each 91.4-m-long by 9.14-m-wide by 3.96-m-high, arranged in eight seven-room panels. After filling and sealing, creep closure of the salt will close the rooms, crush the waste containers (steel drums, boxes, and shielded canisters) and encapsulate the waste.

SANDIA NATIONAL LABORATORIES' ROLE:

Sandia National Laboratories' primary role in support of the WIPP project has been as the scientific and technical advisor to the DOE. The main SNL functional organization supporting the WIPP is the Carlsbad Programs Group located in a dedicated facility directly across from the DOE Carlsbad Field Office (CBFO), the DOE field office which manages the WIPP project in Carlsbad, New Mexico. The manager of the Carlsbad

Programs Group provides overall guidance to Sandia's WIPP-related work, and direction to SNL WIPP project personnel on a daily basis.

The Carlsbad Programs Group is part of the SNL Nuclear Waste Management Programs Center (6800), which comes under SNL Energy Information & Infrastructure Surety Division (6000). The Carlsbad Programs Group is organized into three Departments: Performance Assessment and Decision Analysis, Repository Performance, and TRU Waste Systems Engineering. Each of these three departments is headed by a Sandia National Laboratories manager who reports directly to the manager of the Carlsbad Programs Group. These managers are responsible for providing technical supervision and personnel management functions for the personnel within their departments. The Quality Assurance and Business Management functions are independently organized, and report directly to the manager of the Carlsbad Programs Group to assure their independence from line functions. The SNL organizational structure supporting the WIPP project is available on the Sandia National Laboratories NWMP On-line documents web site located at www.nwmp.sandia.gov. A copy of this chart is attached to this document.

Throughout Sandia National Laboratories' involvement with the WIPP project, SNL has established contracts with external agencies for technical support services. These contracts have included other DOE national laboratories – Brookhaven National Laboratory (BNL), Lawrence Livermore National Laboratory (LLNL), Pacific Northwest National Laboratory (PNNL), and Los Alamos National Laboratory (LANL), as well as universities, private companies, and individuals. For work done in support of the WIPP, SNL includes a Quality Assurance Clause in the contract Statement of Work specifying QA program requirements the services provider must follow. Three approaches are used, based on the nature of the work, and existing supplier QA programs:

- The contractor is allowed to develop and use a QA program which meets the DOE CBFO Quality Assurance Program Document (QAPD) requirements, and which SNL evaluates and approves.
- The contractor is allowed to follow the SNL QA program.
- The contractor is allowed to use a combination approach of following the contractor's QA program for some QA elements, and the SNL program for other specific QA elements.

Regardless of the QA approach used, SNL retains overall responsibility for assuring that all work conducted by contractors for Sandia National Laboratories in support of the WIPP project is conducted under a QA program which meets DOE QA requirements and expectations. Additionally, contractor QA programs, as well as contractor self-assessment programs are audited by SNL NQA-1 certified Lead Auditors.

Sandia National Laboratories periodically conducts internal self-assessments of the adequacy and effectiveness of implementation of the SNL WIPP QA program. Also the DOE/CBFO conducts an audit of the SNL WIPP QA program annually. Both the CBFO and SNL QA programs have provisions for identifying, documenting, evaluating, and correcting deficiencies noted during both audits and normal work activities.